A Modular Stem-Fixed Bearing Total Ankle Replacement: A Two Year Follow Up of 27 Consecutive Cases

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My disclosure is in the Final AOFAS Program Book.

I have a potential conflict with this presentation due to:

Paid Consultant: Wright Medical, Bacterin International
Purpose

- Present outcomes of 27 consecutive patients who received a total ankle replacement using a modular stem fixed bearing prosthetic at two years post implantation.
- The authors understand that short term follow-up of arthroplasty provides little value to understanding the life of the prosthetic.
- We feel that it is important to discuss short term results so that newly trained surgeons in ankle arthroplasty understand the benefits and pitfalls.
Introduction

- Arthrosis of the ankle is a common problem as a result of prior trauma, rheumatologic disease, or simple repetitive degeneration.
- When conservative treatment fails, ankle arthrodesis has been the surgical gold standard treatment for end stage ankle arthritis.
  - Reflecting the unacceptably high complication rate of original prosthetic designs¹
- Ankle arthrodesis does not come with a low complication rate.
  - A recent literature review on ankle arthrodesis vs. ankle arthroplasty revealed approximately 10% develop non-unions, while 9% require revisional surgery²
- Newer prosthetic designs show more promise with better results.
  - Constant debate remains between fixed bearing and mobile bearing designs.
    - Data on newer fixed bearing implant designs is promising³
    - No reported clinical outcomes of a modular stem fixed bearing implant...
Methods

- n = 27
- Average age = 62 years
Methods

- All patients received a fixed bearing modular stem ankle prosthetic if they had:
  - less than five degrees of tibial varus/valgus
  - less than 5 degrees tibial recurvatum/procurvatum
  - less than 35 degrees of talar deformity

- Assessed functional ability, pain, and incidence of intra-operative and post-operative complications at 2 years post implantation
- All answered a questionnaire pre-operatively, 6 months post-operative, 1 year, and 2 years post-operatively

Appropriate institutional review was obtained and protocol was followed
Results

- Preoperative pain (8.5 ± 0.75)
- 1-year postoperative (2.1 ± 1.8)
- 2-years postoperative (1.7 ± 1.6)
- Pain significantly improved postoperatively ($P < 0.001$)
- Pain significantly improved postoperatively from the 1 year assessment to the 2 year assessment ($P = 0.003$)
4 (15%) patients presented with wound complications:
- 2 patients were closed with local care
- 1 patient required a local pedicle flap
- 1 patient was treated with free flap
- 1 (3.7%) patient presented with a deep infection and had the prosthetic explanted
  - Underwent revision arthroplasty and healed without complication
- 1 patient sustained an intra-operative tibial fracture that healed without complication
- None of the 27 patients presented with implant subsidence or osteolysis
- 1 deep vein thrombosis was encountered which developed into a non-fatal pulmonary embolus
Conclusion

- Improvement in total ankle prosthetic design has made arthroplasty a more popular choice for the treatment of end stage arthritis.

- This is the first prospective follow up report using a modular stem fixed bearing total ankle replacement and the results observed thus far are promising.

- While long term follow up is needed, we have shown modular stem fixed bearing total ankle replacements can be implanted in a predictable and consistent fashion with a complication rate equal to or better than previously described implants.

2. Haddad, SL; Coetzee, JC; Estok, R; et al.: Intermediate and long-term outcomes of total ankle arthroplasty and ankle arthrodesis. A systematic review of the literature